

ON NEW GENERA AND SPECIES OF FISHES.

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AN analysis of the following paper shows that it deals in one way or another with 38 species of fishes, all but two of which belong to Queensland. The addition of these 36 species to the fauna of the State is due to the enterprise and acumen of the members of the Amateur Fishermen's Association of Queensland, and of those friends, equally of both sexes, who, though as yet, unfortunately, not members, have spared neither time nor trouble in collecting and forwarding objects of interest. The fact that such an addition has been made to our fauna during the short space of twelve months through the medium of a comparatively small and struggling Association, calls attention to some points of profound interest to all those to whom the future welfare of our great State is a matter of thoughtful study. Primarily it emphasizes the magnitude of the work which still remains to be done in elucidating the problems connected with the marine zoology of the State; and it has to be remembered that with this elucidation is intimately connected an industry, which, being unaffected either by drought or flood, is more stable and permanent than either pastoral or mining pursuits—which Nature brings in profuse abundance to our very doors—which recuperates itself for the heavy annual toll which we take from it without the cost of a penny piece to the community—and which, though now small and neglected, cannot fail in time to be one of the most reliable as well as the most valuable assets of the State. Secondly it proves the utility of this and kindred Associations, so long as they keep ever in view that the primal reason of their existence is to encourage the preservation of our fishes, and to foster the development of our fisheries; these two objects can only be successfully accomplished

by increasingly protecting the nurseries of our food-fishes from the onslaughts of ignorance and greed. Finally, it demonstrates in no uncertain way that this Association is worthy of a more intelligent support, both financial and sympathetic, from Parliament and the public, since the work is done in the common interest of all, without reward, save in the consciousness of worthy work worthily performed.

All the fishes referred to in this paper, whether types or otherwise, are in the collection of the Amateur Fishermen's Association of Queensland.

The general results attained in this paper may be most advantageously shown by dividing the analysis referred to above into different sections as follow:—

a. Proposed new genera (4).

BRACHÆLURUS ; fam. *Orectolobidæ* ; type, *B. colcloughi* Ogilby ; v. infra.

CIRRISCYLLIUM ; fam. ead. ; type, *Chiloscyllium modestum* Gunther, Proc. Zool. Soc., 1871, p. 654, pl. LIV : Queensland.

PTENONOTUS ; fam. *Exocætidæ* ; type, *Exocætus cirriger** Peters, Mon. Akad. Berlin, 1877, p. 555, pl.—fig. 1 : China.

MEROGYMNUS ; fam. *Opistognathidæ* ; type, *M. eximius* Ogilby ; v. infra.

b. Proposed new species (11).

1. HETERODONTUS BONÆ-SPEI ; fam. *Heterodontidæ* ; Table Bay, S. Africa.
2. BRACHÆLURUS COLCLOUGHI ; fam. *Scyliorhinidæ* ; Moreton Bay.
3. DASYATIS FLUVIORUM ; fam. *Dasyatidæ* ; Brisbane River.
4. EXONAUTES FULVIPES ; fam. *Exocætidæ* ; Lord Howe Island.
5. TRACHINOTUS VELOX ; fam. *Carangidæ* ; Moreton Bay.
6. APOGONICHTHYS NEBULOSUS ; fam. *Apogonidæ* ; Brisbane River.
7. HYPOPLECTRODES JAMESONI ; fam. *Serranidæ* ; Moreton Bay.
8. PARAPLESIOPS POWERI ; fam. ead. ; Moreton Bay.

* This species has so far been recorded from the China Sea only.

9. *MEROGYMNUS EXIMIUS*; fam. *Opisthognathidæ*; Snapper
Grounds off Moreton Bay.
10. *PSEUDUPENEUS JEFFI*; fam. *Mullidæ*; Brisbane River.
11. *SPHEROIDES PERLEVIS*; fam. *Tetraodontidæ*; Moreton
Bay.

ORECTOLOBIDÆ.

BRACHÆLURUS *gen. nov.*

Form rather short and stout, the distal region of the tail scarcely elevated above the dorsal plane. Head moderate and but little depressed, with rather short, broadly rounded snout. Nasal valve folded, with a prominent cirrus. Mouth inferior, transverse, of moderate size, nearer to the eye than to the tip of the snout. with well developed labial grooves, which are not continuous across the symphysis of the lower jaw, behind which is a conspicuous longitudinal groove. Teeth similar in both jaws, arranged in many series, small, and tricuspid. Eyes small, elongate-oval, with horizontal pupil; spiracles large, below and behind the eye. Posterior gill-slit largest, rather nearer to the fourth than the remaining pairs are to one another, the three last slits above the base of the pectoral fin. Tail a little longer than the head and trunk. First dorsal fin originating above the base of the ventrals, and subequal in size to the second; anal fin low, close to the caudal: caudal fin with the upper flap feebly, the lower moderately developed and notched near the tip; a slight notch between the lobes: pectoral and ventral fins large. Skin covered with minute, smooth, lozenge-shaped scales. Ovoviviparous. *βραχύς* short; *ἄλιουπος*, a cat).

Small ground sharks from the coast of southern Queensland, forming a connecting link between the oviparous *Hemiscylliinae* and the ovoviviparous *Orectobinae*. Type *Brachælurus colcloughi*. (v. infra, p. 4).

Waite's family *Hemiscylliidæ*, characterized "mainly by having the anal fin behind the second dorsal and in being ovoviviparous"* will have to lapse, owing to my announcement of the oviparity of *Chiloscyllium*†, which necessitates a rearrangement of the scyllioid sharks, of

* Waite, Rec. Austr. Mus., iv, 1901, pt. i, p. 32.

† Ogilby, Proc. Roy. Soc. Queensl., xx, 1906, p. 27.

which I am only prepared to acknowledge two families, the *Scyliorhinidæ* with 5 genera and the *Orectolobidæ* with 9 genera.

It also necessitates the formation of a second new genus for the reception of Günther's *Chiloscyllium modestum*—the very species on which Mr. Waite relied for the foundation of his family—but which is not strictly congeneric with *Brachælurus* and necessarily much less so with *Hemisicyllium*.

CIRRISCYLLIUM *gen. nov.*

Differs from *Brachælurus* in the larger, wider, and strongly depressed head; in the anterior position of the mouth, which is well in advance of the middle of the eye; in the ovate spiracles, which are only partly behind the eye; in the more posterior insertion of the anal fin, which is approximate to and far overlaps the caudal; and in the much larger scales. (*cirrus*, a lock of hair, here signifying a "tentacle"; *Scyllium*, an allied genus = *Scyliorhinus*: in allusion to the great development of the nasal cirrus in comparison with that of the *Hemisicyllinæ*).

Type—*Chiloscyllium modestum* Günther.

Coasts of Queensland and New South Wales.

BRACHÆLURUS COLCLOUGHI *sp. nov.*

Body robust, its depth $7\frac{5}{8}$ in the total length. Width of head equaling its depth and $\frac{2}{3}$ of its length, which is rather less than $\frac{2}{3}$ of the trunk and $5\frac{5}{7}$ in the total length; upper profile of head evenly rounded; preoral length $\frac{1}{3}$ of that of the head. Anterior angle of nostril equidistant from the mouth and the tip of the snout; internasal width about equaling the preoral length and $\frac{8}{9}$ of the width of the mouth; nasal cirrus $\frac{7}{7}$ of the preoral length, not extending to the lower labial groove, and $1\frac{1}{2}$ time the diameter of the eye in length. Mouth much nearer to the eye than to the tip of the snout, its width $2\frac{5}{7}$, that between the outer angles of the labial grooves $2\frac{2}{7}$ in the length of the head. Eye somewhat nearer to the tip of the snout than to the first gill-slit, its longitudinal diameter $6\frac{2}{3}$ in the length of the head. Interorbital region flat with a slight median groove, its width $2\frac{3}{4}$ in the head. Spiracle subvertical, situated in a deep ovate rimmed pit, its diameter $\frac{2}{3}$ of that of the eye. Branchial region $2\frac{2}{3}$ times the diameter of the eye; width

of first gill-slit $\frac{2}{3}$ of the diameter of the eye and $\frac{5}{8}$ of that of the last slit. Length of head and trunk $\frac{4}{5}$ of that of the tail. First dorsal fin originating above the middle of the base of the ventral, its distance from the tip of the snout $2\frac{1}{4}$ in the total length; anterior and outer borders of fin sublinear, the intervening angle broadly rounded; posterior angle pointed, the hinder border proximally emarginate, its length $1\frac{1}{2}$ time the diameter of the eye and rather more than $\frac{1}{3}$ of its basal length, which is $1\frac{1}{2}$ time the vertical height of the fin: second dorsal similar to but not quite so large as the first, its distance from the origin of which is $1\frac{3}{4}$ in that from the tip of the tail. Distance between origin of anal and second dorsal less than the interval between the dorsals and $4\frac{5}{8}$ in its distance from the ventrals; its height is $2\frac{2}{3}$ in its base; free space between anal and caudal $1\frac{6}{7}$ in the base of the anal. Depth of lower caudal lobe $6\frac{1}{5}$ in its length, which is $4\frac{2}{7}$ in the total length, its extremity rounded; tip of vertebral column not nearly reaching the margin of the fin. Pectoral fin obovate, its distance from the ventral $\frac{2}{3}$ of that from the tip of the snout, its base rather more than $\frac{1}{2}$ of its greatest width and rather less than $\frac{1}{2}$ of its length, which is $\frac{6}{7}$ of that of the head. Origin of ventral fin a little nearer to the first dorsal than to the pectoral. A slight but distinct vertebral groove between the occiput and the first dorsal; lateral line strongly marked forming a ridge, connected by a transverse line above the spiracles. Upper surfaces, sides, and tail ash gray; lower surface of head, throat, and abdomen white. (Named for my friend Mr. John Colclough, late of Brisbane, and now holding a responsible position in the Aru Islands).

Total length of type 460 millimeters.

Coast of Queensland.

Type in the collection of the Amateur Fishermen's Association of Queensland.

Described from an immature male caught at Mud Island, Moreton Bay, on June 8th, 1906, by Mr. F. L. Phillips, and presented by him to the above collection. Cat. No. 410.

There is a second specimen of about the same size in the State Museum.

DASYATIDÆ.

DASYATIS FLUVIORUM *sp. nov.*

Disk subcircular, its length $\frac{8}{9}$ of its width. Anterior borders of disk linear, meeting one another at a widely obtuse angle; posterior borders rather feebly, inner moderately convex; outer angles broadly, posterior somewhat narrowly rounded. Outer border of ventral fin nearly straight, as long as the snout; hinder border feebly convex, meeting the outer at rather less than a right angle, the point rounded; inner angle rounded. Width of mouth subequal to the space between the anterior angles of the nostrils. Snout slightly projecting beyond the anterior contour. Free border of nasal flap minutely fringed. Lower lip corrugated. Diameter of eye $2\frac{6}{7}$ in the width of the interorbital region, which is rather more than that of the mouth and $\frac{1}{8}$ of the length of the disk. Jaws undulated, the upper biemarginate, the intervening ridge fitting into the mesial emargination of the lower jaw, which is strongly bent backwards laterally, so that its entire posterior border is emarginate. Upper jaw succeeded by a wide, fimbriated, membranous flap, bearing on its free border 30 cilia. Floor of mouth with 7 papillæ arranged in three groups; on each side a pair, of which the inner is the longer, the outer sometimes absent or vestigial, and three in the middle, these being more conspicuous and truncated. No rostral groove; frontal region with a wide shallow tongue-shaped median depression, which is separated by a narrow bridge from a much smaller circular occipital depression. A row of small, open, mucigerous papillæ, mostly associated in pairs or threes, between the tip of the snout and the frontal depression, immediately in advance of which they form a small cluster; each preorbital region with a much larger group of similar papillæ, which extends backwards above and below the eye and is united to the rostral system by an oblique series of single pores; a small, irregular cluster outside of and partly anterior to the preorbital group; a semicircular series on either side of and a pair, placed transversely, within the occipital depression; a crescentic biserial band of subcutaneous tubular pores below and well outside the eye; a similarly situated oval cluster below

the spiracles. A group of small blunt tubercles above each spiracle, from which a more or less extended series curves forward along the supraciliary edge; a transverse row of three tubercles behind the occipital depression, from behind the middle one of which a series of retrorse spines extends along the dorsal ridge and is continued on the tail nearly to the base of the caudal spine; one of the median interscapular spines is slightly larger than the others of the vertebral series; entire scapular region tuberculigerous, the central group quinquerradiate, one branch directed forwards along and converging on the axial series, two directed outwards to a level with the spiracle, and two directed backwards, but somewhat divergent from the axis; on either side between the basal angles of the outer and hinder branches are two or three enlarged tubercles. Length of tail $2\frac{1}{4}$ times that of the disk; spinous tubercles of tail, especially the four nearest to the caudal spine, larger than those of the dorsal ridge; sides of tail with a few scattered prickles; proximal portion of caudal spine laterally granulated, the rest, with the exception of the extreme tip, which is smooth, armed with fine, closely set serræ; length of spine $\frac{5}{8}$ of that of the prespinous portion of the tail, which is $5\frac{1}{2}$ in the length of the tail. A short fold, highest posteriorly, on the upper surface of the tail, overlapped in front by the caudal spine; lower surface of tail with a much longer and slightly higher fold, which originates below the base of the caudal spine. Olive-brown above, the margins of the disk and the ventral fins lighter; below bluish white with the discal borders pale brown; tail black, the lower surface and sides of the proximal fourth brown; spine and tubercles whitish (*fluviorum*, of the rivers).

Measurements of type in millimeters.

Length from tip of snout to end of anus 250; width of disk 275; length of ventral fin along outer border 60; width of mouth 27; between outer anterior angles of nostrils 28; diameter of eye $10\frac{1}{2}$; width of interorbital region 30; length of tail 544.

, Brisbane River, ascending well above the tideway.

This species is distinguished from *Dasyatis gymnura* (Müller)* by the shape of the snout, which in that species is "produced and sharp-pointed"; by the convexity of the posterior border of the disk; by the much shorter tail, which in *gymnura* is thrice the length of the disk; and by its general smoothness. In some respects it approaches *Dasyatis sabina* (Le Sueur), which is, like it, a strictly estuarine and fluviatile species.

EXOCÆTIDÆ.

EXONAUTES FULVIPES *sp. nov.*

D. 12; A. 12; Sc. 52—7. Depth of body 6, length of head $4\frac{4}{5}$ in the length of the body. Head a little wider than deep, its width equaling its length in front of the hinder margin of the eye. Snout $\frac{4}{5}$ of the diameter of the eye, which is $2\frac{4}{5}$ in the length of the head, $\frac{8}{9}$ of the postorbital region, and equal to the concave interorbital width. Gill-rakers 19 on the lower branch of the anterior arch, the last 3 tubercular, the longest $\frac{1}{3}$ of the diameter of the eye. Second pair of upper pharyngeal bones separate, armed with slender, conical, setaceous teeth; third pair fused, forming together a half-moon-shaped bone, which is densely clothed mesially with coarse scalpriform teeth. laterally with much smaller tricuspid teeth; lower pharyngeals united to form a sagittate bone, armed with small tricuspid teeth and a few somewhat enlarged and scalpriform teeth posteriorly.† Dorsal fin moderately high, its second and highest ray $\frac{1}{2}$, its basal length $\frac{1}{4}$ of the length of the head: anal originating below the 2nd. ray of the dorsal, which also slightly overlaps it, its length $\frac{2}{3}$ of the head: upper

* *Trygon gymnura* Müller, in Ermann, Reise um die Erde, p. 25, pl. xiii, 1830, is identical with *T. tuberculata* (not Bonnaterre 1788) Shaw, Gen. Zool., v, p. 290, 1804 (after Lacépède's Raie tuberculée) and Günther, Catal. Fish., viii, p. 480, 1870. The latter author records it from Sydney, confounding it with one of our eastern species, possibly my *D. thetidis*. (Mem. Austr. Mus., no. iv. pt. i, p. 46, 1899).

† There is abundant evidence to show that all the teeth were originally tricuspid, those which are now apparently chisel-shaped having had the cusps worn down by continuous trituration.

caudal lobe acutely, lower bluntly pointed, the latter $3\frac{1}{2}$ in the length of the body: two upper pectoral rays simple; 1st. ray $\frac{2}{3}$ of the 2nd, and $\frac{3}{8}$ of the 4th and longest ray; 2nd. ray $\frac{2}{3}$ of the 3rd, and $\frac{2}{3}$ of the 4th ray; outer branch of 3rd. ray extending to midway between the tips of the 2nd, and of its own inner branch; 3rd. ray of the 4th, which is $\frac{4}{5}$ of the length of the body and reaches to the base of the caudal: ventral inserted midway between the root of the caudal and the gill-opening; 3rd. ray longest, not quite reaching to the rudimentary caudal rays and $\frac{1}{3}$ of the body-length. Above glossy brown, each of the scales with a lighter border; sides of head and body golden brown; belly silvery: all the fins pale yellowish brown (*fulvus*, tawny; *pes*, foot).

Type in the Australian Museum, Sydney.

Total length 310 millimeters.

Seas round Lord Howe Island.

The specimen from which the above description was drawn up has been the subject of more than one examination and identification. Originally referred by me to the Middle American *Exonantes dowii*, Waite, during his visit to Lord Howe Island in December, 1902, having obtained several examples through the agency of certain complaisant nesting gannets, re-examined this specimen and decided that it belonged to the Atlantic* *E. rondeletii*; from this species, however, it differs among other characters, in its more slender form, longer snout, shorter anal fin (as compared with the dorsal), longer pectorals, posterior insertion, much greater length and uniform coloration of the ventrals. *E. fulvipes* is in fact the Western Pacific representative of the Atlantic *E. rondeletii*, while it is possible that the Eastern Pacific form, as exemplified by the Acapulco specimen, may differ specifically from both. No other known species of *Exonantes*, other than *E. exsiliens* and *E. rondeletii*, can possibly be confounded with

* I am aware that Lütken records this species from Acapulco, a seaport on the Pacific Coast of Mexico, but Lütken himself was in considerable doubt as to whether he was not confusing two or more species under the specific name *rondeletii*. "This species is subject to some variation, or else, as Dr. Lütken suggests, we are uncertain as to the number of real species that group themselves around its type." (Jordan & Evermann, Fish. N. & Mid. Amer., pt. i, p. 733, footnote*).

E. fulvipes, since all the others have the second pectoral ray divided.* *E. exsiliens* may easily be distinguished by the equality in length of the two first pectoral rays and the anterior position of the ventral fins, which are inserted midway between the root of the caudal and the eye.

Described from a fine specimen in the collection of the Australian Museum, Sydney; Reg. No. I. 1955. I have also examined a second specimen (unnumbered and without locality), labeled in Bleeker's handwriting "*Exocætus exsiliens*."†

Under the heading of "*Exocætus unicolor*? C. V."‡ Kner§ records an exocætid from Sydney; but we know from Bleeker's personal examination of the three examples upon which Valenciennes established his species, and which are part of the collection in the Jardin des Plantes, that this is a hybrid form composed of two specimens of *Cypsilurus* and one of *Exonautes*.

Bleeker's remarks on the three specimens mentioned by Valenciennes are as follows, and in my opinion form

* I am unable to speak with certainty regarding *Exocætus ilma* Clarke, as the author's long and rambling description gives but little clue as to its position, and the important characters connected with the upper pectoral rays are entirely omitted. Judging from the similarity of the dorsal and anal fins we believe it to be *Exonautes*.

† I take this opportunity of publicly thanking the Trustees and Curator of the Australian Museum for their kindness in lending me their valuable collection of flying-fishes.

‡ The following is a translation of Valenciennes' description:—

L'Exocet aux pectorales unicolóres.

(EXOCÆTUS UNICOLOR nob.)

Another species from the Seas of India—

has the occiput flattened and the snout a little compressed, like that of the Mediterranean (*Exocætus volitans*), but the eye is much larger and the head longer. The length of the head is somewhat less than $\frac{1}{2}$ of the total length (c.c.). The orbital diameter is $\frac{1}{3}$ of the length of the head. The dorsal fin is low and nearly equal (in height).

D. 13; A. 11.

The color of the back, like that of the preceding species (*Exocætus speculiger*) is uniform plumbeous; the pectorals are violaceous gray, without either the white spot or border of the preceding species. The ventrals are white, with a small gray longitudinal spot near the axil.

The specimens are a foot long; they have been brought from Vanikoro and Java by MM. Quoy and Gaimard; a third has come to us from the Seas of India by the courtesy of M. Dussumier.

§ Reise Novara, Fisch. p. 325.

the crux of the whole question:—"Formerly I believed that my *oligolepis* was identical with the *unicolor* of Valenciennes, but the examination which I was privileged to make in Paris, of the three examples which served Valenciennes for the establishment of his *unicolor*, has convinced me that not only is *oligolepis* very distinct from it, but also that *unicolor* is founded on three individuals which belong to at least two species, whilst it is not mentioned in the description from which of the three that has been taken. All three specimens have about 50 scales in a longitudinal series, which proves that it cannot rationally be confounded with *oligolepis*. In the individuals from Vanikoro and the Seas of India the dorsal fin commences well in advance of the anal and is composed of 13 rays, and I presume that it is from these examples that the description has been taken. These then should constitute the true *unicolor*. As for Valenciennes' third example, which came from Java, it is a very distinct species, with the dorsal fin originating opposite the first anal ray and supported by 10 rays only. This individual appears to me to be indistinguishable from *Exocætus oxycephalus* Bleeker, Valenciennes having failed to recognise it as a distinct species."* The italics in the above paragraph respecting the origin of the dorsal fin are mine.

The above quotation fixes without fear of contradiction the *Exocætus unicolor* of Valenciennes as a *Cypsilurus*, firstly because the dorsal formula of 13 rays given by that author belongs (fide Bleeker) to the two specimens in which "the dorsal fin commences well in advance of the anal," secondly because Bleeker was the earliest author to fix the name *unicolor* on a definite specimen, and thirdly when two of three examples have been proved to belong to a particular genus we would naturally take one of the majority as the type of the species in preference to the single example forming the minority, no type specimen having been designated by the author; and more especially in this case where the arbitrary selection of such a type would wilfully flout the author's own determination as regards the number of the dorsal rays. Valenciennes' species should, therefore, be included in the genus *Cypsilurus*,

* Atlas Ichth., vi, p. 70.

taking, for choice, the Vanikoro fish as the type, that being the first specimen referred to by its describer.

In Professor Jordan's recent great work* this fish is twice referred to as *Exonautes unicolor*, but the above remarks in my opinion clearly prove that this view of its generic position is founded on error. In vol. I, p. 341, an Australian flying-fish is figured with the legend, "Australian Flying-Fish, *Exonautes unicolor* (Valenciennes). Specimen from Tasman Sea, having parasitic lernæan crustaceans, to which parasitic barnacles are attached (After Kellogg)." The second quotation, in vol. II, p. 213, is—"The large Australian species *Exonautes unicolor* belongs to this group." The undivided second pectoral ray in Kellogg's figure certainly suggests that it belongs to the species here described, but the fin formula—D. 10, A. 12—together with the overlapping of the dorsal by the anal, and the extraordinary shape of the latter fin, points to quite a distinct fish; the origin of the anal being distinctly behind that of the dorsal it can not be Valenciennes' Javan fish in which both fins commence on the same plane, and in which the second pectoral ray is divided (equals *Exocætus oxycephalus* Bleeker). Taking all things into consideration, I am inclined to believe that the figure is intended to represent *Exonautes fulvipes*, which, however, can not strictly be called "the large Australian flying-fish," since, so far as is known, the limit of its growth is about one foot, while *Cypsilurus melanocercus*, which inhabits much the same area, and which is the Pacific representative of *Cypsilurus lineatus*, attains a length of eighteen inches.

Before concluding this article there is just one other point to be cleared up, and that is the identity of the Sydney flying-fish referred with a query by Kner to *Exocætus unicolor*. There are several features even in his insufficient description which do not agree with the two specimens on which my diagnosis is founded. For instance, there is one ray less in the dorsal and anal fins, the smaller eye is more than the interorbital width, which is flat, and the pectorals are shorter; while of course we know nothing of the pectoral formula in Kner's fish. Should, however, Kner's fish eventually prove to be identical with that described above,

* A Guide to the Study of Fishes by David Starr Jordan, 1905.

which can only be ascertained by a direct comparison of the Sydney fish with my description*, the specific name *fulvipes* would be superseded by *cribrosus* Kner, an alternative name given by that author to his fish, and in that case the synonymy of the species would stand as follows :—

EXONAUTES CRIBROSUS.

Exocætus unicolor ? C.V. ; Kner, Reise Novara, Fische p. 325, 1867 : Sydney.

Exocætus cribrosus Kner, *ibid.*, p. 326. Suggested new name should the species prove distinct from *E. unicolor*.

Exocætus dowii Ogilby, Mem. Austr. Mus., No. 2, Lord Howe Island, p. 71, 1889. Not *E. dowii* Gill, 1863 = *E. rufipinnis* Cuvier & Valenciennes, 1846.

Exonautes rondeletii Waite, Rec. Austr. Mus., v, 1904, pp. 156 & 195 : Admiralty Islets. Not *Exocætus rondeletii* Cuvier & Valenciennes, 1846.

Exonautes unicolor Jordan, Study of Fishes, i, fig. 226 & ii, p. 213, 1905. Not *Exocætus unicolor* Cuvier & Valenciennes, 1846, which is a *Cypsilurus*.

Exonautes fulvipes Ogilby. Supra.

PTENONOTUS *gen. nov.*

This genus is proposed for the accommodation of *Exocætus cirriger* Peters,† and differs from *Cypsilurus* and *Exonautes*, between which it should be placed, in the elongated hemirhamphiform body, the permanency of the submental appendage, which is of great size and divided distally into numerous fine cutaneous filaments, and in the high, pointed dorsal fin, which extends, when depressed, far beyond the base of the caudal. (*πτηνός*, winged ; *ῥῶτος*, back.)

Hab. China Sea.

* If, as I presume, Kner's Novara specimen from Sydney is deposited in the collection of the Imperial Museum, Vienna, Dr. Steindachner might set at rest for ever the identity of *Exonautes cribrosus* by making the suggested comparison.

† Mon. Akad. Berlin, 1877, p. 555.

CARANGIDÆ.

TRACHINOTUS VELOX *sp. nov.*

D. vi, i 25; A. ii, i 26; Sc. 100 circ. Depth of body $2\frac{2}{3}$, length of head $3\frac{2}{3}$ in the length of the body. Dorsal profile a little more arched than the ventral; profile of head slightly convex from behind the feebly declivous snout to the nape, thence obliquely linear to the origin of the dorsal fin. Snout as long as the diameter of the eye, which is $3\frac{1}{2}$ in the length of the head; interorbital width rather more than the diameter of the eye. Jaws equal; maxillary reaching to below the anterior border of the pupil, its width at the distal extremity $\frac{1}{3}$ of the eye. Jaws with a narrow band of villiform teeth, the outer series slightly enlarged; vomer with a triangular patch, palatines each with a short band of similar teeth. Cheeks and upper third of opercles scaly; anterior half of lateral line undulating and slightly descending; posterior half straight. Anterior rays of the dorsal fin extending to the tip of the last ray, of the anal fin to the base of the caudal, the former $1\frac{6}{7}$, the latter $1\frac{3}{5}$ in the length of the body: upper lobe of caudal fin considerably longer than the lower lobe and a little longer than the produced anal rays: pectoral fin just reaching to the vertical from the vent, $\frac{5}{7}$ of the length of the head: ventral reaching $\frac{5}{8}$ of its distance from the vent, its length $\frac{3}{7}$ of the head. Bluish gray above, silvery on the sides and below; a series of from five to seven more or less conspicuous bluish spots above but usually touching and anteriorly sometimes even encroaching upon the lateral line: elongate rays of the dorsal and anal, and the outer rays and tips of the caudal lobes dark leaden blue (*velox*, swift).

Type in the collection of the Amateur Fishermen's Association of Queensland; Cat. No. 289.

By previous writers on Australian zoology this very distinct species has been confounded with the Indian *Trachinotus russellii*, the confusion having doubtless arisen through the similarity of the color markings in the two species. The western fish may, however, be easily distinguished by its deeper body ($2\frac{1}{4}$ in the length); by the shortness of the dorsal and anal lobes, which do not extend to the end of their respective bases, and of which the dorsal

lobe is the longer; by the much shorter caudal lobes ($2\frac{3}{4}$ in the length); by the more forward insertion of the ventral fin (below the base of the pectoral); etc. Up to the present we have no authentic knowledge of the occurrence of either *T. russellii* or *T. baillonii*, which are certainly distinct, in the seas of the Commonwealth, and all records of these two species eastward from a line drawn between the West Coast of Australia and the Moluccas must be looked upon with grave suspicion.

Described from a half grown example, caught in the South Passage, Moreton Bay, and presented to the A.F.A.Q. Museum by Mr. Willie J. Howes.

FAMILY APOGONIDÆ.

APOGONICHTHYS NEBULOSUS *sp. nov.*

D. vi, i 9; A. iii 8; Sc. 25 circ.; L. l. 9. Depth of body $2\frac{2}{3}$, length of head $2\frac{3}{8}$ in length of body. Snout $\frac{1}{3}$ longer than diameter of eye, which is $\frac{1}{4}$ of length of head. Interorbital region convex, its width $5\frac{2}{5}$ in the head. Maxillary extending to below middle of eye, the width of its distal extremity $\frac{5}{8}$ of the eye; lower jaw the longer. Lateral line ceasing below the spinous dorsal. Spinous dorsal originating behind base of pectoral; second spine highest, $2\frac{1}{4}$ in length of head and not quite so high as the soft dorsal; anal originating slightly behind and somewhat higher than soft dorsal, its basal length $3\frac{1}{6}$ in the head: caudal rounded, $3\frac{3}{5}$ in length of body: pectoral $\frac{2}{3}$ of length of head and as long as the ventral, which reaches to the vent. Pale greenish gray, marbled with olive green; upper surface of head darker; a pair of short, broad, posteriorly convergent, brown bands on the occiput: tips of anal and ventral fins dusky. Irides silvery, strongly suffused with umber brown. (*nebulosus*, clouded).

Dimensions of type in millimeters.—Total length to end of middle caudal ray 57; to end of hypural bone 45; depth of body 17.5; length of head 19; of snout 6.25; diameter of eye 4.75; width of interorbital region 3.5; of maxilla 3; height of 2nd dorsal spine 8.5; of soft dorsal 9.5; length of anal 6; height of anal 10; length of caudal 12.5; of pectoral 12; of ventral 12.

Type in the collection of the Amateur Fishermen's Association of Queensland.

Distribution.—Brisbane River. Type locality, Edward Street Baths.

FAMILY SERRANIDÆ.

HYPOPLECTRODES JAMESONI *sp. nov.*

D. x 20; A. iii 8; Sc. 3— $\frac{43}{6}$ —14; L. l. 40. Depth of body $2\frac{1}{2}$, length of head $2\frac{2}{5}$ in length of body. Snout $\frac{2}{5}$ longer than diameter of eye, which is $4\frac{3}{4}$ in length of head. Interorbital region flat, its width about $\frac{1}{5}$ of length of head. Maxillary extending to below middle of eye, the width of its distal extremity $\frac{5}{8}$ of the eye; lower jaw the longer. Preopercle with 3 strong antrorse spines on the lower border: subopercle denticulated; upper opercular spine much the longer. Scales of cheeks, opercles, nape, and breast much smaller than those of the body; lateral line tubes simple, short anteriorly but gradually increasing in length so that posteriorly they extend nearly along the entire scale. Dorsal originating in advance of base of pectoral: 5th. dorsal spine highest, $2\frac{2}{5}$ in length of head and a little more than the highest soft rays; 10th. spine nearly as high as the 2nd, $\frac{2}{3}$ of highest soft rays: 2nd. anal spine very strong, higher than the 3rd, and than the highest dorsal spine, the rays about as high as the 2nd. spine: caudal truncate, $4\frac{2}{3}$ in total length: pectoral with 16 rays, $\frac{3}{4}$ of length of head and longer than the ventral, which just reaches the vent. Dark olive brown above the lateral line, the trunk and tail with about nine narrow gray bands, which are inconspicuous anteriorly: below the lateral line the gray predominates the dark markings taking the form of seven or eight irregular, transverse, slightly oblique bands, any two of which may be wholly or partially connected, and which only become annular on the tail: sides of head with three longitudinal series of brown spots, the first from below the eye to the preopercular border, whence it curves upwards behind the eye; the second from the maxilla to the middle of the base of the pectoral; the third from the angle of the mouth to below the same; chin blackish; a black band behind the chin and a pair of similar spots below the corners of the mouth; opercles

marbled. Spinous dorsal and basal half of soft similar to the back; outer half of soft dorsal and of caudal lighter with a distinct reddish tinge; anal violaceous gray, with two dark basal spots; pectorals strongly, ventrals faintly tinged with red. Irides dark purplish brown. (Named for Mr. Jonathan Thompson Jameson, an enthusiastic collector, who has brought me many interesting zoological specimens.)*

Dimensions of type in millimeters.—Total length to end of middle caudal ray 85; to end of hypural bone 70; depth of body 28; length of head 29; of snout 8.5; diameter of eye 6; width of interorbital region 3.25; of maxilla 5; height of 5th dorsal spine 11; of 2nd anal spine 12.5; length of caudal 15; of pectoral 21; of ventral 18.

Distribution.—Moreton Bay. Type locality, Woody Point; other specimens seen from Sandgate.

This very distinct species belongs to the *Gilbertia* group of *Hypoplectrodes*, and is most nearly related to *H. semicineta*, from which, however, the much larger scales and more strongly developed anal fin at once distinguish it. The pattern of coloration also is widely different from that of the other members of the genus.

PARAPLESIOPS POWERI.

D. xii 10; A. iii 10. Sc. 2—33—12; L. l. $\frac{30}{12}$. Depth of body equal to the length of the head, which is $\frac{1}{3}$ of that of the body. Snout short and rounded, $\frac{7}{10}$ of the diameter of the eye, which is $\frac{1}{3}$ of the length of the head. Interorbital region narrow and feebly convex, its width $5\frac{3}{4}$ in the head. Jaws equal; maxillary extending to below the hinder border of the eye, the width of its distal extremity $\frac{5}{8}$ of the diameter of the eye. Angle of preopercle with several stout spines. Several series of small scales on the cheeks and postorbital region; opercular scales large. Gill-rakers 12 on the lower branch of the anterior arch. Last dorsal spine the highest, $1\frac{9}{10}$ in the length of the head and $2\frac{1}{4}$ in the 6th and highest ray: 3rd anal spine the highest, as high as the last dorsal spine, the 6th soft ray as high

* I am the more pleased at this opportunity of naming so handsome a species after my friend Mr. Jameson, because it was through my instrumentality that the supposed species named by Macleay *Atherinosoma jamesoni* was reduced to a synonym of *Pseudomugil signifer*.

as the highest dorsal ray and $2\frac{1}{2}$ in the length of the body, as also is the pointed caudal fin: pectoral with 18 rays, the middle the longest, extending to the vertical from the origin of the anal and a little longer than the head: ventral reaching to the base of the first soft anal ray, $2\frac{1}{4}$ in the length of the body. Uniform greenish brown, the upper surface and sides of the head with a purplish gloss: all the fins blackish, except the pectorals and basal third of the ventrals, which are pale yellowish brown.

The description is taken from a fine example, 172 millimeters in length, caught at Mud Island, Moreton Bay, by Mr. Percy Power, to whom I have great pleasure in dedicating this handsome and very distinct species, which he kindly presented to the collection of the Amateur Fishermen's Association of Queensland. Cat. No. 224.

OPISTOGNATHIDÆ.

MEROGYMNUS *gen. nov.*

Differs from *Gnathypops* in having the greater part of the trunk naked, the teeth subequal in size, without any conspicuously enlarged series, and the gill-rakers more numerous, longer, and slender (*μέρος*, in part; *γυμνός*, naked);

East Coast of Australia. Two species.

MEROGYMNUS EXIMIUS *sp. nov.*

D. xi 13; A. i 12; Sc. 85 circ.* Width of body $7\frac{1}{5}$, depth of body $3\frac{3}{4}$, length of head $2\frac{9}{10}$ in the length of the body. Width of head $\frac{3}{4}$ of its depth and $\frac{5}{9}$ of its length. Length of snout $\frac{4}{7}$, interorbital width $\frac{2}{7}$ of the diameter of the eye, which is $3\frac{1}{2}$ in the head. Maxillary extending less than a diameter of the eye behind the eye, its length $\frac{2}{3}$ of that of the head, the width of its distal extremity $\frac{5}{9}$ of the eye. Jaws with broad bands of small subequal curved teeth; one or two teeth on the vomer. Nasal tentacle minute. Gill-rakers 26 on the lower branch of the anterior arch, the longest $\frac{4}{5}$ of the snout. Anterior half of the trunk naked, the rest of the body covered with minute scales,

* Between the base of the caudal fin and the vertical from the vent, in front of which they are mostly irregular, non-imbricate, and deeply imbedded.

which become increasingly distant and imbedded towards the front ; lateral line ceasing below the 5th or 6th dorsal ray. Dorsal fin originating above the middle of the opercle, the length of the spinous portion but little less than that of the soft ; height of the last dorsal spine about $\frac{2}{3}$ of that of the longest (8th or 9th) dorsal ray, which is $\frac{4}{7}$ of the head : anal originating below or but little behind the commencement of the soft dorsal and about as long as it : caudal long, its length $\frac{1}{4}$ or rather more, that of the pectoral $\frac{1}{6}$ of the length of the body : ventral produced, nearly reaching to the vent, $\frac{2}{3}$ of the length of the head. Golden or golden brown, the sides and lower surface of the tail with two series of large round or oval, golden spots, separated by broad blue interlacing bands ; abdominal region and end of tail violet, with splashes of greenish gold : head lilaceous, with irregular violet spots and bars ; a deep blue blotch, prolonged upwards as a zig-zag violet band on the opercle ; branchiostegal region blackish : outer half of spinous dorsal dark olive green, narrowly bordered above with purple, below with pale blue ; the latter band is continued to the end of the soft dorsal, the outer half of which is pale olive green with many of the membranes blue, as also is the base ; anal blue, with a median and a basal series of golden spots ; caudal rays olive green or purple, the interradiial membrane blue ; pectorals pale yellowish brown, the base with one or two vertical blue bars ; ventrals bluish black. Iris light blue, with a narrow golden brown rim ; pupil dark blue (*eximius*, beautiful).

Type in the collection of the Amateur Fishermen's Association of Queensland ; Cat. No. 320. Presented to the Museum by Mr. J. Stitt.

Total length 285 millimeters.

Snapper Banks off Moreton Bay, Queensland.

FAMILY MULLIDÆ.

PSEUDUPENEUS JEFFI *sp. nov.*

D. viii, i 8 ; A. ii 6 ; Sc. $2\frac{1}{2}$ —28 + 3*—6 $\frac{1}{2}$. Depth of body $3\frac{1}{2}$, length of head $3\frac{1}{2}$ in length of body. Diameter of eye equal to width of rounded interorbital region and $\frac{5}{8}$ of snout, which is $2\frac{1}{2}$ in head and is deeply grooved trans-

* On the base of the caudal.

versely above the anterior nostril, from whence the head rises rather abruptly. Teeth stout and conical, in a single series in both jaws. Maxillary extending to midway between anterior nostril and eye, the width of its distal extremity $\frac{5}{8}$ of the latter; lower jaw included; barbels extending to below posterior border of pupil. Opercular spine conspicuous. Cheek-scales in three series; 2 complete scales between the dorsal fins; tubes of lateral line with from 3 to 5 tubules, mostly on the upper side.* Spinous dorsal originating above base of pectoral, shorter† but higher than soft dorsal; 3rd spine highest, $\frac{4}{7}$ of head: middle caudal rays $\frac{1}{2}$ of the outer, which are $\frac{4}{5}$ of head; caudal peduncle rather slender, its least depth $\frac{3}{5}$ of its length and $\frac{6}{7}$ of that of snout: pectoral with 17 rays, reaching to 11th scale of lateral line, and a little shorter than ventral, which is $\frac{4}{5}$ of head. Reddish, the median line of the back darker; two broad curved bands on the upper half of the sides greenish yellow; below them a third narrower linear yellow band; these bands extend forwards to the snout and maxillary, the upper passing through the eye and uniting with the dorsal band behind the soft fin, the median terminating at the base of the caudal fin, the lower above the end of the anal; these bands are separated by narrow bars of shining pink; lower surface pearly white; a dark spot on the upper lateral band close behind the eye, and a second at the angle of the preopercle, the two connected by a lighter band; a larger black blotch on each side of the upper half of the caudal peduncle, united above by a broad brown band. Fins red, the proximal half of the rays paler; soft dorsal and caudal narrowly tipped with yellow; base of pectorals dark reddish brown; ventrals with or without a golden submarginal band. Irides fiery orange, clouded above with olive. (Named for Mr. Vincent Henry Jeff. a most generous donor to our Museums).‡

Total length of type to end of middle caudal rays, 121 millimeters.

* As is often the case some of the posterior tubes may be simple; in this instance 5 on the right side are simple while all on the left are branched.

† Membrane of terminal spine not included.

‡ Mr. Jeff's numerous and valuable donations, both to the State Museum and to that with which I am specially associated, entitle him to the warmest thanks of all who are interested in our marine zoology.

Type locality : Brisbane River.

Jeff's Red Mullet is closely related to *Upeneus signatus*, Günther, but the pattern of coloration is so widely different that I deem it better to call attention to it thus, more especially as Günther's species has never been recorded from this State, nor in fact, further north than the Port Jackson District, where it is common.

Nine species of "red mullets" have up to the present been recorded from the Queensland Coast, but this number will doubtless be largely augmented when our northern waters shall have been more critically exploited, since at least ten other Indo-Malayan forms have already been noticed from British New Guinea, the Solomon Islands, and the New Hebrides, namely:—*Upeneus sulphureus*, *Mulloidés ruber*, *Pseudupeneus cherserydrus*, *P. filamentosus*, *P. barberinoides*, *P. indicus*, *P. malabaricus*, *P. bifasciatus*, *P. trifasciatus*, and *P. pleurostigma*.

Our recorded species are as follow:—

- i. UPENEUS Cuvier, Règne Anim., ed. 2, ii, p. 157, 1829 (*vittatus*).

Bands of villiform teeth in both jaws, on the vomer and the palatines.

1. *vittatus* Forskål, Descr. Anim., p. 31, 1775.
2. *tragula* Richardson, Ichth. China & Japan, p. 220, 1846.
3. *roseus* Castelnau, Res. Fish. Austr., p. 11, 1875.

- ii. MULLOIDES Bleeker, Nat. Tijds. Ned. Ind., iii, 1852, p. 697 (*flavolineatus* = *auriflamma*).

Bands of villiform teeth in both jaws; vomer and palatines toothless.

4. *auriflamma* Forskål, *ibid.*, p. 30.
5. *armatus* de Vis, Proc. Linn. Soc. N. S. Wales, ix, 1884, p. 458 (? *samoensis*).

- iii. PSEUDUPENEUS Bleeker, Mem. Poiss. Cote de Guinée, p. 56, 1862 (*prayensis*).

A single series of stout conical teeth in each jaw; vomer and palatines toothless.

6. *barberinus* Lacepede, Hist. Nat. Poiss., iii, p. 406, 1802.
7. *rubroniger* de Vis, *ibid.*
8. *jeffi* Ogilby, *ut supra*.
9. *porosus* Cuvier & Valenciennes, Hist. Nat. Poiss., iii, p. 455, 1829.

FAMILY TETRAODONTIDÆ.

SPHEROIDES PERLEVIS *sp. nov.*

D. 8; A. 6; P. 16. Body robust, evenly tapering from behind the eye, its depth $3\frac{2}{5}$, length of head 3 in length of body. Width of head $1\frac{1}{6}$, depth of head $1\frac{1}{2}$ in its length. Eye moderate, free below, its diameter $2\frac{1}{3}$ in length of snout and $4\frac{3}{4}$ in that of head. Interorbital region feebly convex, its width $7\frac{2}{5}$ (including eyelids $2\frac{1}{6}$) in the head. Lips equal, papillose within; lower jaw included; chin prominent. Teeth with slightly uneven edges and well marked sutural grooves. Width of gill-opening $\frac{2}{3}$ more than diameter of eye, its inner fold slightly protruding upon the inferior half. Skin entirely free from spinules, everywhere longitudinally striated; lateral ridge strongly developed, but less conspicuous on head and distal end of peduncle. Lateral line gently curved and slightly undulating to a point midway between tip of pectoral and origin of dorsal where it descends more abruptly; thence nearly straight to base of caudal; a transverse line, divided mesially, above base of pectoral; a short branch curving behind the eye; another between hinder margin of eye and lateral ridge; main line carried forward from below hinder third of lower eyelid in a wide curve to the nostril; a short disconnected line, divided mesially, in front of nostril; a second line below lateral ridge from extremity of pectoral to base of caudal. Dorsal fin pointed, its length $2\frac{1}{2}$ in its height, which is 2 in the head, its distance from the caudal $3\frac{2}{5}$ in total length: anal fin originating below the middle of, shorter and lower than, the dorsal: caudal fin feebly rounded, $4\frac{3}{4}$ in total length; depth of caudal peduncle immediately behind base of dorsal $\frac{4}{5}$ of its width at the same place, its least depth $4\frac{2}{3}$ in the head: pectoral fin rounded, with the upper angle slightly produced, $1\frac{7}{8}$ in length of head. Upper surface lilaceous brown, mottled with gray, and closely dotted and lined with darker brown; lower half of sides gray with larger violet spots; below pearly white; an irregularly oblong, narrow, silvery ring in front of the dorsal.* Dorsal and caudal fins violaceous; anal and pectorals whitish. Iris golden. (*perlevis*, very smooth: in reference to the complete absence of dermal spinules).

* Perhaps an individual peculiarity.

Type in the collection of the Amateur Fishermen's Association of Queensland, to which it was presented by Mr. Chris. Dahl, who caught it at Sandgate, Moreton Bay.

Finally, I have much pleasure in recording the following fishes, examples of which are in the collection of the Amateur Fishermen's Association, as new either to the Commonwealth or to the State Fauna.

To the Australian fauna should now be added—

Paraplotosus albilabris Cuvier & Valenciennes, Hist. Nat. Poiss., xv, p. 427, 1840 : Batavia. A single specimen from Dunk Island ; E. J. Banfield ; Cat. No. 469.

Sphyræna brachygnathos Bleeker, Nat. Tijds. Ned. Ind., vii, 1854, p. 368 : Batchian. Occurs in Moreton Bay ; Chris. Dahl ; Cat. No. 439.

Apogon endekataenia Bleeker, *ibid.*, iii, 1852, p. 449 : Banka. Several specimens from Green Island (Cairns District) and Dunk Island, collected respectively by Messrs. E. J. Lyons and E. J. Banfield ; Cat. Nos. 198 & 472.

Apogon macropterus Kuhl & van Hasselt : Cuvier & Valenciennes, *ibid.*, ii, p. 160, 1828 : Java. A single specimen from Dunk Island ; E. J. Banfield ; Cat. No. 474.

Stethojulis renardi Bleeker, *ibid.*, ii, 1851, p. 253 : Banda. Two specimens, one from Green Island, Cairns, E. J. Lyons, and one from Dunk Island, E. J. Banfield ; Cat. Nos. 199 & 485.

Teuthis nigrofuscus Forskal, Descr. Anim., p. 64, 1775 : Djidda. One specimen from Dunk Island ; E. J. Banfield ; Cat. No. 481.

Pterois lunulata Schlegel, Faun. Japon., Pisc. p. 46, 1843 : Nagasaki. One specimen from Mooloolah ; J. H. Stevens ; Cat. No. 421.

Addenda to the Queensland fauna.

Galeus australis Macleay, Proc. Linn. Soc. N. S. Wales, vi, 1881, p. 354 : Port Jackson. I have examined two specimens of this shark from Moreton Bay. The most northerly locality previously reported was "off Morna Point to the south of Port Stephens" (Waite, Mem. Austr. Mus).

Engraulis antipodum Günther, B. M. Catal. Fish., vii, p. 386, 1868 : Tasmania and New Zealand. Visits our

southern shores in large shoals during the winter months. Southport, J. Douglas Ogilby ; Cat. No. 686.

Hyperlophus copii Ogilby, Proc. Linn. Soc. N. S. Wales, xxii, 1897, p. 72 : Maroubra. Same as preceding. Mud Island ; J. Douglas Ogilby ; Cat. No. 413.

Aulopus purpurissatus Richardson, Icon. Pisc., p. vi, pl. iii, fig 3, 1843. Occasionally taken on the Snapper Grounds off Moreton Bay, and ranging northward to Laguna Bay, Tewantin, whence I received a specimen through the courtesy of Mr. V. H. Jeff ; Cat. No. 156. Also one from Mount Tempest ; C. Russell ; Cat. No. 339.

Thunnus thynnus (Linnæus), Syst. Nat., ed. 10, p. 297, 1758. I have examined two specimens of *Thunnus*, the first taken in Port Jackson, the second in Moreton Bay, and was unable in either case to find any characters by which they might be differentiated from the Mediterranean fish.

Trachurus declivis Jenyns, Zool. Beagle, iii, Fish. p. 68, 1842 : King George's Sound. Visits our coast during the winter months. Cape Moreton ; C. Sigley ; Cat. No. 95.

Apogon roseigaster Ramsay & Ogilby, Proc. Linn. Soc. N. S. Wales, xi, 1887, p. 1101 : Port Jackson. Abundant in the Brisbane River.

Apogonichthys auritus Cuvier & Valenciennes, Hist. Nat. Poiss., vii, p. 443, 1831 : Mauritius. Two examples ; Dunk Island ; E. J. Banfield ; Cat. No. 473 : One example ; Bell's Swamps, in fresh water ; W. Weatherill.

Acanthistius serratus Cuvier & Valenciennes, *ibid.*, ii, p. 399, 1828 : King George's Sound. Two examples ; Point Lookout ; E. H. Shearwin ; Cat. No. 425.

Chilodactylus fuscus Castelnau, Proc. Linn. Soc. N. S. Wales, iii, 1879, p. 376 : Port Jackson. One specimen ; Moreton Bay ; V. H. Jeff ; Cat. No. 172.

Verreo oxycephalus Bleeker, Notices Ichth., p. 7, 1862 : Japan. One example ; Arkwright Shoal ; H. W. Haseler ; Cat. No. 269.

Achærodus badius Ogilby, Edib. Fish & Crust. N. S. Wales, p. 134, 1893 : Port Jackson. Not uncommon in the shop windows during the winter of 1906 ; not observed during that of 1907 ; again common in 1908.

PlatyGLOSSUS immaculatus Macleay, Proc. Linn. Soc. N. S. Wales, ii, 1878, p. 363 : Port Darwin. One specimen ; Dunk Island ; E. J. Banfield ; Cat. No. 484.

Pseudolabrus gymnogenis Günther, *ibid.*, iv, p. 117, 1862: Port Jackson. One specimen; Mooloolah; C. Sigley & H. W. Haseler; Cat. No. 178.

Pseudolabrus nigromarginatus Macleay, *ibid.*, iii, 1878, p. 35: Port Jackson. One specimen; Caloundra Banks; W. H. Sidle; Cat. No. 158.

Olisthops cyanomelas Richardson, *Ann. & Mag. Nat. Hist.* (2) vii, 1851, p. 291: King George's Sound. One specimen; Southport; H. Myers; Cat. No. 568.

Cæsiusoma æquipinnis Richardson, *Zool. Erebus & Terror, Fish.* p. 121, 1848: King George's Sound. Not uncommon on the Snapper Banks off Moreton Bay, but apparently not found inshore as is its habit further south.

Atypichthys strigatus Günther, *ibid.*, ii, p. 64, 1860: Swan River. Large examples are occasionally taken in the same localities as the preceding species.

Parachætodon ocellatus Cuvier & Valenciennes, *ibid.*, vii, p. 229, 1831: loc. ign. One specimen; Morteon Bay; Miss Gwendoline Fitzgerald; Cat. No. 446.

Pseudorhombus novæ-cambiæ Ogilby, *Proc. Linn. Soc. N. S. Wales*, xxiii, 1898, p. 296: Port Jackson. Not uncommon in Moreton Bay.

Aserragodes macleayanus Ramsay, *Proc. Linn. Soc. N. S. Wales*, v, 1881, p. 462: Port Jackson. I have seen specimens from the Brisbane River and trawled a pair off Caloundra.

Synaptura nigra Macleay, *ibid.*, vi, 1881, p. 49: Port Jackson. Not uncommon in our southern estuaries.

Addenda to the New South Wales fauna—

Spilotichthys labiosus Macleay, *Proc. Linn. Soc. N. S. Wales*, viii, 1884, p. 202: Wide Bay. Occurs at least as far south as the Tweed Heads.

In addition to the above, I provisionally refer to *Odontaspis tricuspidatus* Day (*Fishes of India*, p. 713, pl. clxxxvi, fig. 1, 1878: Karachi), a pair of large sharks captured in my presence some years ago on the coast of New South Wales in the course of a visit of inspection to the Manning River oyster beds by the late Hon. J. Want, Dr. James Cox, and others. Day's description agrees fairly well with my notes taken from the specimens in

question, except in respect to color, mine being of a dark steel blue above, whereas Day describes his as being "brown superiorly." The original specimens came from the coasts of Sind and Beluchistan, but Day mentions one in the British Museum from South Australia. They attain a length of twenty feet.

Note a :—In September, 1906, I received from Mr. T. F. B. Mullin the jaws of a shark captured in Table Bay by one of his employees, who had recently arrived from South Africa, having sailed direct from Capetown to Brisbane. On examination these proved to belong to a cestraciont shark belonging to the *Heterodontus philippi* group. As I am unaware that the family *Heterodontidæ* has as yet been recorded from the seas of the Cape,* and as it is extremely unlikely that the Australian species should range so far westward, I propose to distinguish the South African form as *Heterodontus bonæ-spei*.

Note b .:—Mr. J. T. Jamison, of Woody Point, having kindly obtained for me some of the fishes on which Macleay founded his *Atherinosoma jamesoni*† I am reluctantly obliged to announce their identity with *Pseudomugil signifer*, Kner.‡

* Shortly after receiving the specimen I wrote to the Curator of the South African Museum on the subject but have not as yet received an answer; 23rd June, 1908.

† Proc. Linn. Soc. N. S. Wales, ix, 1884, p. 171 : Bremer River.

‡ Reise Novara, Fisch. p. 275, pl. xiii, fig. 5, 1867 : Sydney.
